

(12) INTERNATIONAL APPLICATION FILED UNDER THE INTERNATIONAL PATENT COOPERATION  
TREATY (PCT)

(19) World Intellectual Property Organization  
International Office



03.10.2003

(43) International publication date: October 2,  
2003 (02.10.2003)

PCT

(10) International publication number:  
**WO 03/080789A1**

(51) International patent classification<sup>7</sup>: C12M  
1/34, G01N 33/543, 33/487, 33/50, C12Q 1/02

(21) International file number: PCT/EP03/02252

(22) International application date: March 5, 2003  
(05.03.2003)

(25) Filing language: German

(26) Publication language: German

(30) Priority data:  
02006978.7 March 27, 2002 (27.03.2002) EP  
02016793.8 July 26, 2002 (26.07.2002) EP

(71) Applicants (for all designated states except the  
United States): MICRONAS GMBH [DE/DE];  
Hans-Bunte-Strasse 19, 79108 Freiburg (DE).  
MICRONAS HOLDING GMBH [DE/DE]; Hans-  
Bunte-Strasse 19, 79108 Freiburg (DE).

(71) Applicants and

(72) Inventors: KLAPPROTH, Holger [DE/DE];  
Kehlerstrasse 12, 79108 Freiburg (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LEHMANN,  
Mirko [DE/DE]; Runzstrasse 71, 79102 Freiburg (DE)

(74) Attorney: BICKEL, Michael; Westphal,  
Mussnug & Partner; Mozartstrasse 8, 80336 Munich  
(DE).

(81) Designated states (national): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,  
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN,  
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

[continued on next page]

WO/03/080789A1

(54) Title: DEVICE AND METHOD FOR DETECTING CELLULAR PROCESSES BY  
MEANS OF LUMINESCENCE MEASUREMENTS

[graphic]

(57) Abstract: The invention relates to a device for detecting a luminescence event in or in the immediate vicinity of a cell, a cell cluster, or a tissue, having the following elements: (a) a carrier element (1) having a surface (100) prepared for direct or indirect coupling of cells, and (b) at least one optical detector (2) for receiving a luminescence signal and integrated in the carrier element (1) below the surface (100), characterized by the following elements: (c) a cover (7) having an inlet (8) and an outlet (9) and covering the surface (100) such as to form a cavity (70), and (d) an excitation source (21) connected to the inlet (8).